[10191/1867]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:		: Examiner: Robert Fennema
	Rainer Sommer	:
For:	METHOD FOR CONTROLLING THE PROGRAM RUN IN A MICROCONTROLLER	:
Filed:	July 2, 2001	: Art Unit: 2183
Serial No.:	**09/897,870**	:

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

SIR:

Appellant submits the present Reply Brief (the two-month response date for which is June 30, 2008 (since June 29, 2008 is a Sunday) in response to the Examiner's Answer mailed on April 29, 2008 ("the Answer"). Although not required, two duplicate copies of this Reply Brief are also being submitted herewith as a courtesy to the Patent Office.

It is respectfully submitted that the final rejections of claims 1 to 32 should be reversed for the reasons set forth below.

Finally, the Office is again encouraged to contact the undersigned if there are any questions as to the description of the claimed subject matter, or any other matters.

ARGUMENT

A. The rejections under 35 U.S.C. § 103(a) as to Claims 1 to 4, 6 to 8, 10 to 14 and 16 to 32

Claims 1 to 4, 6 to 8, 10 to 14 and 16 to 32 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 4,489,414 to Titherley in view of the Plug and Play ISA Specification, by Intel and Microsoft, and further in view of "Transforming the PC: Plug and Play" by Halfhill. The responses to date are incorporated by reference, as appropriate.

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Also, as clearly indicated by the Supreme Court in *KSR*, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

It is respectfully submitted that the Answer and Office Actions to date have not established a proper and sustainable *prima facie* case of obviousness. Specifically, there is no proper motivation to combine the "Titherley" reference with either the "Plug and Play" reference or the "Halfhill" reference.

The "Background Information" section of the present application explains that there are microcontrollers that include at least one microprocessor, an analog/digital (A/D)

converter, a digital/analog (D/A) converter, a databus, internal control elements (e.g. a read only memory), and/or additional components. The different versions of one microcontroller within one controller family are referred to as controller steps, which can have different scopes of functionalities (so called features) and/or different faulty features (which are bypassed by way of so called workarounds, in which case an attempt is made to simulate the faulty features using other features). Because of the different features and workarounds, the programs according to the related art are adapted to the particular controller step, but the result is a plurality of different programs that all have to be maintained during software updates. (See specification, page 1, line 11 to page 2, line 2).

The presently claimed subject matter provides the benefit of flexibility, so that it is possible to control the run of a program executable on at least one microprocessor of a microcontroller to the greatest extent possible, so that the program can be flexibly adapted to the different controller steps of a microcontroller. It is particularly advantageous that the presently claimed subject matter proposes that information regarding the hardware of the microcontroller be read in from at least one information register of a microcontroller, and that, as a function of the information read in, at least one switch be actuated via which the run of the program is controlled. (See specification, page 3, line 17 to 25).

The Answer does not specifically address the specific assertions in the Appeal Brief. In fact, the nature of the subject matter of the "Titherly," "Plug and Play" and "Halfhill" references is such that it would not be obvious to one of ordinary skill in the art to modify the "Titherley" reference using either the "Plug and Play" reference or the "Halfhill" reference. Generally speaking, the "Titherley" reference is directed to testing computer peripherals with portable test equipment. At any one time, the portable test equipment is only attached to one peripheral under test, or at most a plurality of serially attached devices, such as the daisy-chained devices of col. 5, lines 1-5.

In contrast, the "Plug and Play" reference is specifically directed to arbitrating conflicting demands for system resources by a plurality of cards attached to an ISA bus. The plurality of cards are all simultaneously attached to the ISA bus, creating a situation in which the plurality of ISA cards are effectively attached in parallel. Thus, the aim and technological bent of the "Plug and Play" reference is to arbitrate simultaneous requests from a plurality of parallel devices.

The Answer does not specifically refute that it would not be obvious to one of ordinary skill in the art to apply such a technology arbitrating simultaneous and parallel requests, as in the "Plug and Play" reference, to the single or serial device situation of the "Titherley" reference because one of ordinary skill in the art would not consider applying a technology created for parallel devices to a situation involving a single or serial devices. That is, there are no conflicting requests for system resources in the "Titherley" reference, and therefore one of ordinary skill in the art would not be motivated to apply a technology for resolving such parallel resource request conflicts to a situation that did not involve parallel resource request conflicts.

Still further, it is respectfully submitted that the asserted motivation to combine the references is not sustainable in the context of modifying the "Titherley" reference with either the "Plug and Play" or the "Halfhill" references, and thus does not provide proper motivation to combine these references. Regarding the motivation to combine, the Answer and the Final Office Action essentially assert that "*it would have been obvious to one of ordinary skill in the pertinent art at the time of the applicant's invention that applying plug and play functionality to Titherley would be able to reduce the complexity of the system, which is a burden* ***to the user****, and thus automate the system.*"

Further regarding the motivation to combine, the Answer and the Advisory Action conclusorily asserts that "*it will make PCs easier to set up and configure*" and that "*it will ease the task of installing new hardware and software.* " However, one skilled in the art would not be motivated to modify the "Titherly" reference to apply plug-and-play functionality because the "Titherly" reference in fact teaches away from this combination.

The "Titherly" reference, for example, stresses the importance of the of reducing the complexity of the system by altering the programming of the testing devise by changing plug-in program modules and thereby avoiding the use of a general purpose computer due to the cost and unwieldiness of such a computer as an engineer's diagnostic tool. (See col. 1, lines 44 to 50).

Furthermore, the "Titherly" reference refers to a "hand carried device" which would form part of a maintenance engineer's equipment. It is submitted that applying the plug-and-play functionality would plainly increase the complexity of the system of the "Titherley" reference in this context. For example, the portable test equipment of the "Titherley" reference would need to be modified and enhanced to communicate with plug-and-play devices in a manner that would accomplish the "Plug and Play" functionality (for example,

steps 1-7 as in FIG. 2 on page 5 of the "Plug and Play" reference), which is significantly more complex than the manner in which the "Titherley" reference already communicates with the peripheral under test. This would be in stark contrast to the stated goal of the "Titherley" reference to have a system which "is as simple and as cheap as possible in the sense that many features of existing microprocessor systems which are irrelevant to peripheral testing and exercising are omitted." (See col. 2, lines 36 to 41).

In fact, the "Titherley" reference also specifically suggests that "It will be apparent that such portable microprocessor system is effectively inoperable as a computer system in the absence of the plug-in firmware module." Thus, the portable test equipment of the "Titherley" reference, if modified by the "Plug and Play" reference, would increase in complexity and not function for its intended use as a portable diagnostic tool.

Therefore, contrary to the conclusory assertions of the Answer and Office Actions to date, one of ordinary skill in the art would not be motivated to modify the "Titherley" reference in combination with the "Plug and Play" reference to make PCs easier to set up and configure or to ease the task of installing new hardware and software. This is because the "Titherley" reference specifically teaches away from this increased complexity, which would be burdensome in the design, manufacture and use of the portable test equipment for its intended purpose.

It is also respectfully submitted that there would also be no motivation to modify the "Titherley" reference with either the "Plug and Play" or the "Halfhill" references because such a modification would not actually even provide any benefit to a user of the portable test equipment of the "Titherley" reference. As stated in the MPEP at section 2143.01.III, "*[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination*" (some emphasis added). The device of the "Titherley" reference is not a PC and the peripherals that the device of the "Titherley" reference were intended to test are not plug-and-play enabled peripherals.

In fact, the device of the "Titherley" reference is capable (with the proper plug-in module) of testing peripherals which do not even include an Industry Standard Architecture (ISA) card as required for plug-and-play to function. Thus, even if the portable test equipment of the "Titherley" reference were modified to work with plug-and-play peripherals, it would not provide any increased functionality to the portable test equipment

because the device of the "Titherley" reference is not a PC and does not test plug-and-play peripherals. Accordingly, one of ordinary skill in the art would not be motivated to combine the "Titherley" reference with the "Plug and Play" and "Halfhill" references because it would not be desirable to do so because there would be no benefit.

As stated in the MPEP at section 2141.02.VI, "*[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention*" (some emphasis added). Furthermore, it would at least be overly burdensome to modify all of the devices that the "Titherley" reference is intended to test to be plug-and-play enabled. For evidence of the incredible difficulty of such a task, the Office is directed to the "Halfhill" reference, which discusses this at length. The "Halfhill" references states of page 1, for example, "*And although Plug and Play does a remarkable job of making PCs friendlier while maintaining compatibility with existing hardware, it also requires that you eventually replace almost all that hardware.*"

In the Answer and the Advisory Action, the Office essentially asserts that this reference has been taken out of context and that the many advantages of plug-and-play far outweigh the stipulation that you must eventually replace old, obsolete hardware. In fact, within the context of the "Titherley" reference, this requirement to replace all hardware would be burdensome -- as conceded by the Office in the Advisory Action -- and would therefore not provide any benefit because the device of the "Titherley" reference is not a PC and does not test plug-and-play peripherals. Consequently, one of ordinary skill in the art would not be motivated to modify the "Titherley" reference as asserted.

Since the references are not properly combinable, they cannot and do not disclose a method for controlling a run of a program executable on at least one microprocessor of a microcontroller, including the features of: reading in information regarding hardware of the microcontroller from at least one information register of the microcontroller; and actuating at least one switch via which the program run is controlled as a function of the information read in, including the feature in which *program execution only depends on information in the at least one information register of the microcontroller, which is special for each microcontroller step, without other external or operator related influences*, as provided for in the context of claim 1 (and in claims 6 and 10).

This is also true for essentially the same reasons as to claim 10, which analogously (but more specifically) provides that the "*program is executable using at least two different*

microcontroller steps, and that in the at least one information register of the microcontroller, the information directly relates to hardware of a special microcontroller step and that, depending on this information, execution of the program is switchable so that only program parts are executed which are necessary for the special microcontroller step, so that the execution of the program is directly related to the special microcontroller step".

Accordingly, claims 1, 6, 10 and 32 are allowable, as are their dependent claims.

Still further, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Office's assertions reflect a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

That is exactly the case here since it is believed and respectfully submitted that the Answer and Office Actions to date offer no proper and sustainable evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of the claims to address the problems met thereby, as explained above.

Indeed, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" — which is not the case here — there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed," stating that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Here again, there have been no such findings to establish that the features discussed above of the rejected claims are met by the reference relied upon. As referred to above, any review of the references, whether taken alone or combined, makes plain that the references do not describe the features discussed above of the rejected claims.

Therefore, there is no valid motivation to combine the "Titherley," "Plug and Play" and "Halfhill" references in view of Simar, U.S. Patent No. 6,182,203, so that independent claims 1, 6, 10 and 32, as well as their respective dependent claims 2 to 4, 7 to 8, 11 to 14 and 16 to 31, are allowable.

B. The Rejections Under 35 U.S.C. § 103(a) as to Dependent Claims 5, 9 and 15

Claims 5, 9, and 15 respectively depend from independent claims 1, 6 and 10, but require that the features be used in the context of a motor vehicle, and are therefore allowable over the "Titherley" reference in view of the "Plug and Play" reference for essentially the reasons explained above as to their base claims.

Moreover, the third-level "Simar" reference does not cure – and is not asserted to cure -- the critical deficiencies of the primary and secondary references as explained above.

Therefore, claims 5, 9, and 15 are allowable over the "Titherley" reference in view of the "Plug and Play" reference and also in view of the "Simar" reference.

As further regards all of the obviousness rejections of the claims, *the presently claimed subject matter provides the benefit of flexibility, so that it is possible to control the run of a program executable on at least one microprocessor of a microcontroller to the greatest extent possible, so that the program can be flexibly adapted to the different controller steps of a microcontroller. It is particularly advantageous that the presently claimed subject matter proposes that information regarding the hardware of the microcontroller be read in from at least one information register of a microcontroller, and that, as a function of the information read in, at least one switch be actuated via which the run of the program is controlled*. (See specification, page 3, line 17 to 25). Accordingly, the claimed subject matter is not obvious since its benefits are evidence of non-obvious as to the references as applied.

As still further regards all of the obviousness rejections of the claims, it is respectfully submitted that a proper *prima facie* case has not been made in the present case for obviousness, since the Answer and Office Actions to date never made any proper and sustainable findings, such as, for example, regarding in any way whatsoever what a person having ordinary skill in the art would have been at the time the claimed subject matter of the present application was made. (See *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998) (the "factual predicates underlying" a *prima facie* "obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art")). It is respectfully submitted that the proper test for showing obviousness is what the "combined teachings, knowledge of one of

ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art", and that the Patent Office must provide particular findings in this regard — the evidence for which does not include "broad conclusory statements standing alone". (See *In re Kotzab*, 55 U.S.P.Q. 2d 1313, 1317 (Fed. Cir. 2000) (citing *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1999) (obviousness rejections reversed where no findings were made "concerning the identification of the relevant art", the "level of ordinary skill in the art" or "the nature of the problem to be solved"))). It is respectfully submitted that there has been no such proper and sustainable showings by the Answer and Office Actions to date or by the Advisory Action.

In fact, the present lack of any of the required factual findings forces both Appellants and any Appeals Board to resort to unwarranted speculation to ascertain exactly what facts underly the present obviousness rejections. The law mandates that the allocation of the proof burdens requires that the Patent Office provide the factual basis for rejecting a patent application under 35 U.S.C. § 103. (See *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016, 154 U.S.P.Q. 173, 177 (C.C.P.A. 1967))). In short, the Examiner bears the initial burden of presenting a proper prima facie unpatentability case — which has not been met in the present case. (See *In re Oetiker*, 977 F.2d 1443, 1445, 24, U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)).

Accordingly, claims 1 to 32 are allowable.

CONCLUSION

In view of the above, it is respectfully requested that the rejections of the finally rejected claims 1 to 32 be reversed, and that these claims be allowed as presented.

Respectfully submitted,

Dated: 6/30/2008

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